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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,394	04/27/2006	Philip Marc Johnson	U02-0086296	1284

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MOORE AND VAN ALLEN PLLC FOR SEMC
P.O. BOX 13706
430 DAVIS DRIVE, SUITE 500
RESEARCH TRIANGLE PARK, NC 27709

EXAMINER	
VO, HUYEN X	
ART UNIT	**PAPER NUMBER**
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,394	JOHNSON ET AL.	
	Examiner	Art Unit	
	Huyen X. Vo	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/27/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-12 are objected to because of the following informalities: reference numbers that should be removed from the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeMartin et al. (US 6421527) in view of Classon et al. (US 6732321)

4. Regarding claim 1, DeMartin et al. disclose a method of channel decoding speech frames in a receiver capable of multiple (M) codec modes, said channel encoded speech frames comprised of an in-band bit portion and a speech portion, said method comprising:

(a) decoding the in-band bit portion of a received frame to obtain confidence levels associated with each of the M codec modes (*col. 2, lines 38-47, decoding the header prior to channel decoding to determine which decoding mode to use; and also referring to col. 4, lines 32-48, codec mode is selected based on the level of confidence level of the soft values received*);

(b) choosing the most likely codec mode based on the highest confidence level to channel decode the speech portion (*col. 4, lines 32-48 and/or referring to channel decoder 32 in figure 2*);

(c) decoding the speech portion of the received frame using the chosen speech codec mode (*referring to Speech Decoder 34 in figure 2 using mode determined*); and

(d) performing a frame determination check to determine the quality of the decoded speech frame (*col. 4, line 56 to col. 5, line 13*).

DeMartin et al. fail to specifically disclose the step (e) if the decoded speech frame is determined to be of poor quality, then choosing the next most likely codec mode corresponding to the next highest in-band bit decoding confidence level and repeating steps (c) through (e). However, Classon et al. teach if the decoded speech frame is determined to be of poor quality, then choosing the next most likely codec mode corresponding to the next highest in-band bit decoding confidence level and repeating steps (c) through (e) (*col. 8, lines 22-43, if the decoded speech is not satisfactory, then a new codec mode is used until the speech frame is accepted or until a time-out occurs*).

Since DeMartin et al. and Classon et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify DeMartin et al. by incorporating the teaching of Classon et al. in order to improve signal reconstruction efficiency.

5. Regarding claim 6, DeMartin et al. discloses a method of channel decoding speech frames in a receiver capable of multiple (M) codec modes, said channel encoded speech frames comprised of an in-band bit portion and a speech portion, said method comprising:

calculating an in-band decode metric for each speech codec mode (*col. 4, line 32 to col. 5, line 13, determining codec modes based on received signal*);

partially decoding speech data for each speech codec mode (*col. 2, lines 38-47, decoding the header prior to channel decoding to determine which decoding mode to use*);

determining the most likely speech codec mode based upon the partially decoded speech data and the calculated in-band decode metric data (*referring to Speech Decoder 34 in figure 2 using mode determined; and referring to col. 4, line 32 to col. 5, line 13, determining codec modes based on received signal*); and

resuming decoding of the speech data using the most likely speech codec mode (*referring to Speech Decoder 34 in figure 2 using mode determined*).

6. Regarding claim 7, DeMartin et al. discloses a receiver for channel decoding speech frames, said receiver capable of multiple (M) codec modes, said channel encoded speech frames comprised of an in-band bit portion and a speech portion, said receiver comprising:

an in-band bit decoder (*col. 2, lines 38-47, decoding the header prior to channel decoding to determine which decoding mode to use*) for:

decoding the in-band bit portion of a speech frame to obtain confidence levels associated with each of the M codec modes (*col. 2, lines 38-47, decoding the header prior to channel decoding to determine which decoding mode to use; and also referring to col. 4, lines 32-48, codec mode is selected based on the level of confidence level of the soft values received*); and

choosing the most likely speech codec mode based on the highest confidence level to decode the speech portion (*col. 4, lines 32-48 and/or referring to channel decoder 32 in figure 2, and referring to Speech Decoder 34 in figure 2 using mode determined*); and

a channel decoder coupled with the in-band bit decoder (*referring to figure 2, equalizer is connected to channel decoder*) for:

decoding the speech portion of the received frame using the chosen codec mode (*col. 4, lines 32-48 and/or referring to channel decoder 32 in figure 2, and referring to Speech Decoder 34 in figure 2 using mode determined*); and

performing a frame determination check to determine the quality of the decoded speech frame (*col. 4, line 56 to col. 5, line 13*).

DeMartin et al. fail to specifically disclose if the decoded speech frame is determined to be of poor quality, then choosing the next most likely codec mode corresponding to the next highest in-band bit decoding confidence level and running the channel decoder on the received frame again. However, Classon et al. teach if the decoded speech frame is determined to be of poor quality, then choosing the next most likely codec mode corresponding to the next highest in-band bit decoding confidence

level and running the channel decoder on the received frame again (*col. 8, lines 22-43, if the decoded speech is not satisfactory, then a new codec mode is used until the speech frame is accepted or until a time-out occurs*).

Since DeMartin et al. and Classon et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify DeMartin et al. by incorporating the teaching of Classon et al. in order to improve signal reconstruction efficiency.

7. Regarding claim 12, DeMartin discloses a receiver for channel decoding speech frames, said receiver capable of multiple (M) codec modes, said channel encoded speech frames comprised of an in-band bit portion and a speech portion, said receiver comprising:

an in-band bit decoder for calculating an in-band decode metric for each codec mode (*col. 2, lines 38-47, decoding the header prior to channel decoding to determine which decoding mode to use*); and

a channel decoder for:

partially decoding speech data for each codec mode (*col. 2, lines 38-47, decoding the header prior to channel decoding to determine which decoding mode to use*);

determining the most likely codec mode based upon the partially decoded speech data and the calculated in-band decode metric data (*referring to Speech*

Decoder 34 in figure 2 using mode determined; and referring to col. 4, line 32 to col. 5, line 13, determining codec modes based on received signal); and

resuming decoding of the speech data using the most likely codec mode (*referring to Speech Decoder 34 in figure 2 using mode determined*).

8. Regarding claims 2 and 8, DeMartin et al. further disclose the method and receiver of claims 1 and 7, respectively, wherein steps (c) through (e) are repeated for a maximum number of iterations (N), where N < M (*col. 4, line 49 to col. 5, line 13, it is within the scope of this section; codec modes are switching back and forth according to determined decoding mode; If the system includes 3 codec modes, and the system is at codec mode 1, the system can only switch to mode 2 or mode 3. The number of switching is 2, which is less than 3*).

9. Regarding claims 3 and 9, DeMartin et al. further disclose the method and receiver of claims 1 and 7, respectively, wherein steps (c) through (e) are repeated so long as the confidence level for the in-band bit decoding with respect to the current codec mode is above a threshold confidence level (*col. 4, line 49 to col. 5, line 13; discussing conditions for switching codec modes*).

10. Regarding claims 4 and 10, DeMartin et al. further disclose the method and receiver of claims 2 and 8, respectively, wherein the maximum number of iterations N is determined prior to choosing the most likely codec mode to decode the speech portion

based on the highest confidence level (*table 1 in col. 6 shows possible codec modes and they are pre-determined*).

11. Regarding claims 5 and 11, DeMartin et al. further disclose the method and receiver of claims 4 and 10, respectively, wherein the maximum number of iterations (N) is set to the number of codec modes that exceed a threshold confidence level (*col. 4, line 54 to col. 5, line 10, modes are switched back and forth according to level of confidence determined*).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nystrom et al. (US 5982766) is considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HXV

11/20/2006